Meridian 1 and Succession Communication Server for Enterprise 1000

Message Center

Description and Operation

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About this document

This document applies to Meridian 1 Internet Enabled and Succession Communication Server for Enterprise (CSE) 1000 systems.

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

Who should use this document

This document is intended for individuals responsible for Message Center administration.

Description

Contents

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Reference list

The following are the references in this section:

- *Administration* (553-3001-311)
- *Automatic Call Distribution: Feature Description* (553-2671-110)
- *Meridian Link ISDN/AP General Guide* (553-2901-100)

The Message Center allows an incoming trunk or internal call to be automatically routed to a Message Center if it is not answered at the original destination. The main functions of the Message Center are as follows:

- receive and take messages for calls forwarded to the Message Center
- convey messages to called telephones or consoles on request
- activate and deactivate Message Waiting Indication at users' telephones

Automatic and manual diagnostics are provided to clear all active Message Waiting Indications when required. Three types of Message Center operations are offered:

- Automatic Call Distribution (ACD)
- SL-1 and Meridian digital telephone
- attendant

Depending on the packages equipped, you can have any Message Center option or combination of Message Center.

Incoming calls to the Message Center

Calls coming into a Message Center can be direct or indirect.

Direct message calls

The Message Center can be accessed by a direct message call, which can take any of the following forms:

- An attendant extends a call to the message center.

- A 500/2500 telephone dials the Message Center DN.
- An SL-1 or Meridian digital telephone accesses the Message Center.

Indirect message calls

A call can be routed to the Message Center if it is not answered at the original terminating telephone. This indirect call can take any of the following forms:

- A non-direct inward dial call encounters a no-answer condition so that Call Forward No Answer (CFNA) is invoked, routing it to the Message Center.
- A direct inward dial (DID) call encounters CFNA or Call Forward Busy (CFB) and is routed to the Message Center.
- The Message Center Directory Number (DN) can be specified as a Hunt or Call Forward DN for any telephone.

Operation

A Message Center can be organized in one of three ways:

- Automatic Call Distribution (ACD)
- SL-1 and Meridian digital telephone
- attendant

Automatic Call Distribution (ACD) Message Center

A special aspect of ACD is defined for optional use with Message Center. Each telephone assigned to the ACD-type Message Center is equipped with an ACD in-calls key/lamp pair. One Message Indication and one Message Cancellation key/lamp pair must also be equipped if Message Waiting Indication and control are required. Calls redirected to the Message Center are queued in order of arrival and distributed to answering positions in the same way ACD calls are distributed.

If all assigned positions are in the Make Busy mode, redirected calls and message retrieval calls are forwarded to the night number specified for the Message Center ACD DN. This DN can be the attendant, another Message Center, or an outside number. Up to 240 Message Center ACD DNs can be assigned per customer.

ACD Agent Position Increase, software Release 12 and later software
Software supports up to 1200 positions on the system Options 51C, 61C, and 81C.

If the appropriate ACD packages are equipped, an ACD Message Center can support a full complement of ACD features. See *Automatic Call Distribution: Feature Description* (553-2671-110).

When an indirect message call is presented to a Message Center operator's telephone, the MSG IN-CALLS key flashes, and both the calling DN and called DN are displayed. If the call originated from a trunk, the route and member number of the trunk display instead of the calling DN.

To answer the call, press the MSG IN-CALLS key. You can now take a message or release as required.

If the caller wants to leave a message, take down the required information, then pass it on to the called party. Press the MSG INDIC key to notify the called party that they have a message waiting.

Press the RLS key to release the call. You rejoin the ACD queue when the Message Center call is released.

When a Message Center call comes in and the called DN displays, the MSG INDIC lamp at the operator's telephone reflects the status of the called telephone's Message Waiting lamp as follows. If Audible Message Waiting (AMW) is equipped in place of the lamp, interrupted dial tone indicates the called party's status.

- Steadily lit: If the operator's MSG INDIC lamp is steadily lit, the Message Waiting Indication at the called telephone is inactive.
- Fast flashing (60 ipm): If the operator's MSG INDIC lamp is fast flashing, then the Message Waiting Indication at the called telephone is active.
- Slow flashing (30 ipm): If the operator's MSG INDIC lamp is slow flashing, the Message Waiting lamp at the called telephone is disabled or not equipped. This state does not occur if Message Waiting Indication is by interrupted dial tone.

Telephone Message Center

The telephone's Message Center has one or more display telephones sharing a DN designated the Message Center DN. An incoming call to the Message Center is presented to all Message Center telephones at once. The first operator to press the flashing MC DN key is connected to the call. If all operators are busy, incoming message calls get the treatment as specified.

When you press the flashing MC DN key, you are immediately connected to the caller. The display shows the originating DN (or trunk route and member number) and terminating DN. If CPND is equipped, the names are displayed.

When a Message Center call comes in and the called DN displays, the MSG INDIC lamp at the operator's telephone reflects the status of the called telephone's Message Waiting lamp as follows. If Audible Message Waiting (AMW) is equipped in place of the lamp, interrupted dial tone indicates the called party's status.

- Steadily lit: If the operator's MSG INDIC lamp is steadily lit, the Message Waiting indication at the called telephone is inactive.
- Fast flashing (60 ipm): If the operator's MSG INDIC lamp is fast flashing, then the Message Waiting Indication at the called telephone is active.
- Slow flashing (30 ipm): If the operator's MSG INDIC lamp is slow flashing, the Message Waiting lamp at the called telephone is disabled or not equipped. This state does not occur if Message Waiting Indication is by interrupted dial tone.

When an indirect message call is presented to a Message Center operator's telephone, the MSG IN-CALLS key flashes, and both the calling DN and called DN are displayed. If the call originated from a trunk, the route and member number of the trunk display instead of the calling DN.

To answer the call, press the MSG IN-CALLS key. You can now take a message or release as required.

If the caller wants to leave a message, take down the required information and pass it on to the called party. Press the MSG INDIC key to notify the called party that they have a message waiting.

Press the RLS key to release the call. You return to normal telephone operations until the next Message Center call appears.

All telephones have Message Waiting capability, and any SL-1 or Meridian digital telephone (except the M3000) can function as a Message Center. The DN used for message taking should be the prime DN if Message Waiting lamp Indication and Cancellation are desired. Calls are redirected to the telephone-type Message Center using message forwarding. Since this is a normal DN, calls are not queued.

A telephone with Message Waiting may be equipped with a key/lamp pair that notifies you when a message is waiting. When this key is pressed, you are connected with the Message Center.

500/2500 telephones with Message Waiting Allowed CLS may be equipped with a neon lamp for visual indication. These telephones must dial-access the Message Center.

A telephone without a Message Waiting lamp, except the M2317, can be informed that a message is waiting by Audible Message Waiting (AMW) (Prime DNs and Single Appearance DNs only). A special Message Waiting tone is heard each time you go off hook until the Message Waiting Indication is canceled by the Message Center operator. Calls can be originated and received with the tone activated.

Each telephone with a Message Waiting Allowed CLS is assigned to a specific Message Center. Unanswered calls are automatically routed to that Message Center. There is no upper limit to the number of telephones that can be assigned to any Message Center.

Attendant Message Center

An attendant Message Center has up to 15 attendant consoles in a system handling messages in addition to their normal functions as attendants. Incoming message calls can access an attendant Message Center in one of two ways: a phantom Message Center DN or normal attendant access.

Phantom Message Center DN This method requires the presence of the ACD package in the system. The ACD DN for this feature has no agents assigned to it. Any message calls coming into it are automatically transferred to the attendant and appear on a MSG CENTER Incoming Call Indicator (ICI) key. The Message Center DN established in this way is thus a phantom Message Center DN.

When a message call appears at an attendant console through a Message Center DN, the MSG CENTER ICI lamp flashes, and the display shows the originating DN (or trunk route and member number) and terminating DN. If Call Party Name Display (CPND) is equipped, the names are shown instead of the DNs.

When a Message Center call comes in and the called DN displays, the MSG INDIC lamp at the operator's telephone reflects the status of the called telephone's Message Waiting lamp as follows. If Audible Message Waiting (AMW) is equipped in place of the lamp, interrupted dial tone indicates the called party's status.

- Steadily lit: If the operator's MSG INDIC lamp is steadily lit, the Message Waiting Indication at the called telephone is inactive.
- Fast flashing (60 ipm): If the operator's MSG INDIC lamp is fast flashing, then the Message Waiting Indication at the called telephone is active.
- Slow flashing (30 ipm): If the operator's MSG INDIC lamp is slow flashing, the Message Waiting lamp at the called telephone is disabled or not equipped. This state does not occur if Message Waiting Indication is by interrupted dial tone.

When you press a free LPK key or the flashing MSG CENTER ICI key, you automatically connect to the incoming call. If the caller wants to leave a message, take down the required information and pass it on to the called party. Press the MSG INDIC key to notify the called party that they have a message waiting.

Press the RLS key to release the call. You return to normal telephone operations until the next Message Center call appears.

Normal attendant access If a phantom Message Center DN has not been established on an attendant console ICI key, the attendant must determine verbally that this is a message call. In this case, the MSG INDIC lamp does not show the state of the called party's Message Waiting Indication. After the call is released, the attendant can provide Message Waiting Indication by directly accessing the called party's telephone.

Message retrieval calls

All telephones have Message Waiting capability, and any SL-1 or Meridian digital telephone (except the M3000) can function as a Message Center. The DN used for message taking should be the prime DN if Message Waiting lamp Indication and Cancellation are desired. Calls are redirected to the telephone-type Message Center using Message Forwarding. Since this is a normal DN, calls are not queued.

A telephone with Message Waiting may be equipped with a key/lamp pair that notifies you when a message is waiting. When this key is pressed, you are connected with the Message Center.

500/2500 telephones with Message Waiting Allowed Class of Service may be equipped with a neon lamp for visual indication. These telephones must dial-access the Message Center.

A telephone without a Message Waiting lamp, except the M2317, can be informed that a message is waiting by Audible Message Waiting (AMW) (Prime DNs and Single Appearance DNs only). A special Message Waiting tone is heard each time you go off hook until the Message Waiting Indication is canceled by the Message Center operator. Calls can be originated and received with the tone activated.

Message indication at a called telephone can take the following forms:

SL-1 and Meridian digital telephones with a key/lamp pair The lamp associated with the MSG WAITING key indicates that a message is waiting at the Message Center.

500/2500 telephones with a Message Waiting lamp A Message Waiting lamp on the telephone indicates that a message is waiting at the Message Center.

Telephones Without a Message Waiting lamp As an option in software Release 2, Message Waiting Indication can be provided by AMW (a 120 ipm interrupted dial tone) instead of a Message Waiting lamp, or key/lamp pair when the user goes off hook at the telephone. A faulty Message Waiting lamp does not result in Message Waiting Indication by interrupted dial tone; in this case, it is up to the user to call the Message Center to see if there is a message. Telephones equipped with neither Message Waiting lamps nor AMW have no visual indication that a message is waiting. It is up to the user to call the Message Center to see if a message is waiting.

Regardless of whether message indication is by lamp or AMW, the user can still make calls and operate features normally. The Message Indication remains active until canceled by a Message Center operator or by the system during a night routine.

Placing a message retrieval call

SL-1 sets The user goes off hook and presses the MESSAGE WAITING key. The digit display shows the Message Center DN. The Message Center answers and gives the user the message, then extinguishes the user's Message Indication lamp. The user then goes on hook. The user can also access the Message Center by going off hook and pressing the MESSAGE WAITING key even if the associated lamp is not flashing.

If message indication is by AMW, the user goes off hook and dials the Message Center DN. The Message Center operator cancels the AMW in the same way as a Message Waiting lamp.

500/2500 Telephones Whether or not a message indication lamp is provided with the telephone, the user goes off hook and dials the Message Center DN. The Message Center answers and gives the user the message, then extinguishes the user's Message Indication lamp. If message indication was provided by interrupted dial tone, this is canceled by the Message Center operator in the same way as a Message Waiting lamp. The user then goes on hook.

Answering a message retrieval call

ACD Message Center

The message retrieval call is presented on the MSG IN-CALLS key of a Message Center SL-1 telephone, and the digit display shows the DN of the calling telephone. The MSG CANC lamp reflects the state of the caller's Message Waiting indication as follows:

- Steadily lit: The Message Waiting Indication at the calling telephone is inactive.
- Fast flashing (60 ipm): The Message Waiting Indication at the calling telephone is active.
- Slow flashing (30 ipm): The Message Waiting lamp at the calling telephone is either disabled or not equipped. This state does not occur if Message Waiting Indication is by interrupted dial tone.

To answer the call, the Message Center operator presses the MSG IN-CALLS key. If the Message Center is equipped with Call Forcing, the call is answered automatically. The operator gives the caller the message. If the MSG CANC lamp is flashing, the operator presses the MSG CANC key to deactivate the caller's Message Waiting Indication. The operator then presses the RLS key to release the call.

DN Message Center

The message retrieval call is presented on the MC DN key of a Message Center SL-1 telephone. The Message Center operator answers the call by pressing the MC DN key. The digit display shows the calling DN, and the MSG CANC lamp indicates the state of the calling telephone's message Waiting Indication in the same way as for an ACD-type Message Center. The procedures for deactivating Message Waiting Indication are the same as for an ACD Message Center.

Attendant Message Center

The presentation of a direct message call to an attendant console depends on whether a Phantom Message Center DN has been assigned to an ICI key (Phantom Message Center DN), or the user must dial the attendant as in a normal attendant call (Normal Attendant Access).

The Phantom Message Center ACD DN is assigned to overflow to the MSG CENTER ICI key on the attendant console. When a direct Message Center call comes into the console, the MSG CENTER ICI key flashes. To answer the call, the Message Center operator presses the MSG CENTER ICI key or a free LPK key. The procedures for deactivating a Message Waiting indicator are the same as for an ACD-type Message Center.

With Normal Attendant Access, the attendant must determine verbally that this is a message retrieval call. During the call, the MSG CANC key does not show the state of the user's Message Waiting lamp. After the call is released, the attendant must deactivate Message Waiting Indication directly.

Direct Message Waiting lamp control

The Message Center operator must directly access a telephone to activate or deactivate Message Waiting Indication in the following cases:

- The telephone is calling an Attendant Message Center by direct access.
- The telephone is not currently in contact with the Message Center.

The Message Center operator must first release or place on hold all calls; in an ACD-type Message Center, the NOT READY key must be activated. The operator then decides whether the telephone's Message Waiting Indication is to be activated or canceled.

Query and/or activate

The operator presses the MSG INDIC key, and the associated lamp lights. The operator then dials the DN; no Ringback is heard, but the state of the MSG INDIC lamp reflects the state of the user's Message Waiting lamp (or interrupted dial tone) as follows:

- Steadily lit: The user's Message Waiting Indication is inactive.
- Fast flashing (60 ipm): The user's Message Waiting Indication is active.
- Slow Flashing (30 ipm): The user's Message Waiting lamp is either disabled or not equipped. This state does not occur if Message Waiting Indication is by interrupted dial tone.

Here, the operator can change the state of the user's Message Waiting Indication from inactive to active with the MSG INDIC key. The connection is released when the Message Center operator uses the RLS key.

Query and/or deactivate

The operator presses the MSG CANC key, and the associated lamp lights. The operator then dials the DN. No Ringback is heard, but the state of the MSG CANC lamp reflects the state of the user's Message Waiting Indication in the same way as the MSG INDIC lamp previously described.

At this point, the operator can change the state of the user's Message Waiting Indication from active to inactive by pressing the MSG CANC key, or the indication can be left as it is. The connection is released when the Message Center operator presses the RLS key.

Network Message Service (NMS)

With software Release 15 and later, centralized Message Centers are now provided for all switches in ISDN PRA or ISL networks. Network Message Service (NMS) functions allow access to Message Centers (MC) across a network while remaining transparent to the user. The application is referred to as the Network Message Service—Message Center (NMS-MC).

Three types of Message Centers are supported:

- ACD-type Message Centers
- DN-type Message Centers
- attendant console Message Centers

Feature packaging

The Network Message Service (NMS) package 175 requires the Message Center (MC) package 46 in support.

NMS requires all the packages necessary to support the Integrated Services Digital Network (ISDN), with package 148 as a minimum.

Network Message Services in the Meridian Mail environment require the following packages:

- Originating switch
  - — End to End Signaling (EES) (10)

- Terminating switch
  - — Integrated Messaging System (IMS) (35)
  - — End to End Signaling (EES) (10)
  - — Command Status Link (CSL) (77)

Message Centers in the ACD environment require the ACD packaged options:

- Basic ACD (40)
- ACD package A (45)
- ACD package B (41)
- ACD package C (421)

The user network must be equipped with either the Uniform Dialing Plan (UDP) or the Coordinated Dialing Plan (CDP).

NMS does not support Public Numbering Plans or Multiple Message Center interworking.

Feature implementation

For a complete description of the steps to operate and implement Network Message Services, refer to *Meridian Link ISDN/AP General Guide* (553-2901-100). Also refer to the *Administration* (553-3001-311) for a complete description of the prompts and responses available.

Feature operation

No specific operating procedures are required to use this feature.

Message Waiting Indication (MWI) Interworking

With software Release 19, centralized message services are now provided for a corporate network consisting of Meridian 1 and Centrex (DMS-100) systems. This means that a user on a Meridian 1 system can directly access the voice message system on a DMS-100 and vice versa. MWI Interworking allows either one of the two configurations listed below:

- The Meridian 1 system hosts the Message Center and serves both Meridian 1 and DMS-100 users in the same customer group or corporate network.

  This configuration enables DMS-100 private or public network callers to leave messages for subscribers on the Message Center connected to the Meridian 1 system. The Meridian Message Center then initiates a facility message to turn on the Message Waiting Indicator at the subscriber's station, located either on a Meridian 1 system or on a DMS-100 system within the same customer group. The subscriber can then retrieve the messages, and the Message Waiting Indicators will automatically turn off (accomplished via a facility message initiated from the host switch to the remote switch where the subscriber resides) when retrieval is complete.

- The DMS-100 system hosts the Message Center and serves both Meridian and DMS-100 users in the same customer group.

  This configuration enables Meridian private or public network callers to leave messages for subscribers on the Message Center connected to the DMS-100 system. This configuration then functions in the same way as the Meridian 1 system host configuration.

  Note: These configurations enable one or more Meridian and one or more DMS-100 customer locations to be connected directly or in tandem through Meridian 1 or DMS-100 systems to the Meridian 1 or DMS-100 directly supporting the Message Center. The connections between the switches must be ISDN.

Feature packaging

MWI Interworking requires the following for each node:

- Originating node (the node that has Message Center users)
  - — NMS package 175
  - — ISDN Signaling package 145
  - — ISDN Primary Rate Access package 146 or ISDN Signaling Link package 147
  - — ISDN Network Service package 148
  - — MWC package 46

- EES package 10
- MWI package 219 (if connected to a DMS-100, SL-100, or DMS-250 switch)

Note: DMS-100 and SL-100 must run with BCS 36 or above loaded.

- Host node (the node that hosts the Message Center)
  - NMS package 175
  - IMS package 35
  - ISDN/AP package 77
  - BACD package 40
  - ACDA package 45
  - ISDN Signaling package 145
  - ISDN Primary Rate Access package 146 or ISDN Signaling Link package 147
  - ISDN Network Service package 148
  - MWC package 46
  - EES package 10
  - MWI package 219 (if connected to a DMS-100, SL-100, or DMS-250 switch)
  - Release 19 software
- Tandem node(s) (the node[s] that do not have Message Center users)
  - ISDN Signaling package 145
  - ISDN Primary Rate Access package 146 or ISDN Signaling Link package 147
  - ISDN Network Services package 148
  - MWI package 219 (if connected to a DMS-100, SL-100, or DMS-250 switch)

Note: The Meridian Message Center supports a private network and must be equipped with either the Uniform Dialing Plan (UDP) or the Coordinated Dialing Plan (CDP). The DMS-100 supports both a public and private Message Center and can be equipped with a third-party Message Center vendor, such as OCTEL.

For detailed information on this feature, refer to *Meridian Link ISDN/AP General Guide* (553-2901-100).

Feature implementation

There are no specific implementation procedures for this feature.

Feature operation

No specific operating procedures are required to use this feature.

Equipment requirements

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Reference list

The following are the references in this section:

- *Meridian 1 Telephones: Description and Specifications* (553-3001-108)
- *Automatic Call Distribution: Feature Description* (553-2671-110)

User telephones

A Message Center operator can activate a Message Waiting Indication at any of the following telephones:

- SL-1 telephones with MESSAGE WAITING key/lamp pair assigned
- 500 telephones (equipped with Message Waiting lamp)
- 2500 telephones (equipped with Message Waiting lamp)
- Standard SL-1, 500, or 2500 telephones with AMW

SL-1 telephones with Message Waiting key/lamp pair

Message Waiting Indication is provided by a MESSAGE WAITING key lamp on the SL-1 telephone. The telephone can be a non-digit display or digit display telephone.

500 telephones

The 500 telephone is similar to the standard 500 dial telephone, except that the YR version has a neon lamp above and to the left of the dial. This light comes on during ringing in any type of call, but the Message Center operator can cause the neon lamp to flash in order to indicate that a message is waiting.

2500 telephones

The 2500 telephone is similar to the standard 2500 keypad telephone, except that the YQA version has a neon lamp above and to the left of the key pad. This lamp functions in the same way as that of a 500 telephone.

Standard 500/2500 and SL-1 telephones

Message Waiting Indication cannot be provided visually at these telephones. The user must call the Message Center by dialing the Message Center DN and check to see if there are any messages.

If the system is equipped with software Release 2 or later, AMW can be provided when the user goes off hook in the form of an interrupted dial tone (120 ipm). The user can then dial the Message Center DN and collect the message. In the case of the 500/2500 telephones, the interrupted dial tone form of message indication reduces the hardware requirements of the system. In the case of the SL-1 telephone, it makes an extra feature key available for other uses.

Message Waiting lamp requirements

Should the neon bulb of a 500 or 2500 telephone require replacement, customers should order replacements from Nortel Networks. The bulbs may be ordered using number A0250554. To avoid potential problems, bulbs must meet the following criteria:

- Ignition voltage: The bulb must light when a voltage of 90±2 V dc is applied.
- Extinguishing voltage: The bulb must extinguish when the applied voltage is reduced to 60±2 V dc.
- Power consumption: When a resistance of 30 K ohms is placed in series with the bulb, the power consumption of the bulb must be no more or less than 0.25 W when operated at 90±2 V dc.

If the bulbs installed in a 500 or 2500 telephone do not meet the criteria listed above (for example, if resistance is higher than recommended), the system may see the bulb as being faulty and give a misleading indication to the Message Center operator or disable the feature, or both.

Message Center telephones

The following types of apparatus are suitable for use in a Message Center:

- 16-digit display SL-1 telephones
- 16-digit display attendant consoles

SL-1 telephones

ACD Message Center 16-digit display SL-1 telephones are recommended for use in an ACD-type Message Center. The ACD telephone is similar to the standard 16-digit display SL-1 telephone, but has provision for plugging one or two headsets into the telephone in place of a handset. The telephones should be equipped with MSG IN-CALLS, MSG INDIC, MSG CANC and NOT READY keys, in addition to other keys as required.

A plug-in 24 V transformer or QUT1 centralized power supply is required to power the digit display or any add-on modules, or both. See *Meridian 1 Telephones: Description and Specifications* (553-3001-108) for more information.

Other ACD features are described in *Automatic Call Distribution: Feature Description* (553-2671-110).

DN Message Center The same SL-1 and ACD telephones used for an ACD Message Center can also be used for a DN-type Message Center. In this type of installation, the telephone should be equipped with an MC DN key instead of an MSG IN-CALLS key. The MSG INDIC, MSG CANC, and NOT READY keys are also required.

Attendant consoles

The 16-digit display console is recommended for Message Center use, since with the 8-digit console, some truncation of digit display information can occur. The console(s) can be equipped with a MSG CENTER ICI key to facilitate the control of a message indication at user telephones (although this is not required, since Message Waiting Indication can be performed by direct access), as well as the MSG INDIC and MSG CANC keys.

Network Message Services

Network Message Services supports the following telephones:

- 500/2500 telephones
- SL-1 telephones
- Digital telephones
  - M2009
  - M2012
  - M2018
  - M2112
  - M2317
  - M3000
- Meridian Modular Telephones
  - M2006
  - M2008
  - M2016

- M2216
- M2616 (only as a Message Center)

- all attendant consoles

MWI Interworking

MWI Interworking requires the following equipment:

- Message Center for Meridian 1 system
  - Meridian Mail (requires Release 7 software)
- Centrex switches
  - DMS-100 (requires BCS 36 for interworking)
  - DMS-250
  - SL-100 (requires BCS 36)
- Local or remote switch
  - End to End in-band Signaling
- Call Forward All Calls, Call Forward No Answer, Call Forward Busy, and Hunting connections from Message Center subscriber to Message Center on another switch
  - Primary Rate Interface/ ISDN Signaling Link (PRI/ISL) or Common Channel Signaling System (CCS) #7

System requirements

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Reference list

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- *Administration* (553-3001-311)

QSY22 Power Supply

Power to operate the Message Waiting lamps for 500 and 2500 telephones is supplied by the QSY22 Message Waiting Power Supply Unit. (SL-1 telephones do not require this power supply.) This unit replaces the earlier QSY19 Power Unit.

The power supply can be mounted in the following cabinets: QCA23 (SL-1LE), QCA28 (SL-1A), QCA37 (SL-1M), and QCA8. The power supply is capable of providing power to the Message Waiting line cards of two full PE cabinets (QCA7 and QCA8).

Description

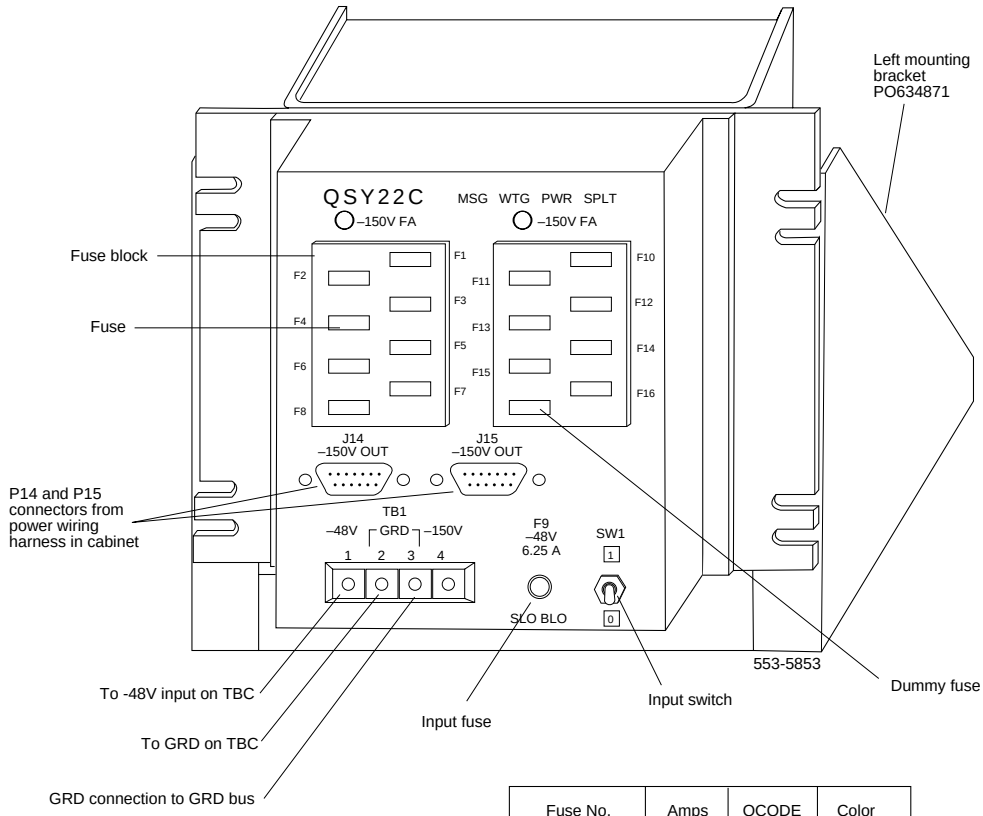
The QSY22 (Figure 1 on page 33) is a –48 to –150 V dc converter with 1.0 A output capacity. The input (TB1-1) is fused at a 6.25 A (slow blow) and accommodates the standard 48 V dc power from the system (see Figure 2 on page 34). The power ground to the system is connected through TB1-2. The logic ground to the system logic ground bus bar is connected through TB1-3. The outputs consist of the following:

- Seven separately fused –150 V dc feeds at connector J14 with a common alarm bar and seven separately fused –150 V dc feeds at connector J15 with a common alarm bar. This provides –150 V dc power to the cabinet in which the QSY22 is mounted. The fuses are rated at 0.25 A each and are numbered 1 to 7 (from connector J14) and 10 to 16 (from connector J15). If a fuse fails, a front panel light emitting diode (LED) lights, indicating that failure has occurred. There is no system alarm to detect loss of output.
- An additional –150 V dc output (TB1-4) fused at 1.33 A (fuse No. 8 on the front panel fuse block), which provides power to the QBL16 Power Distribution Unit on an adjacent PE cabinet.

Mounting

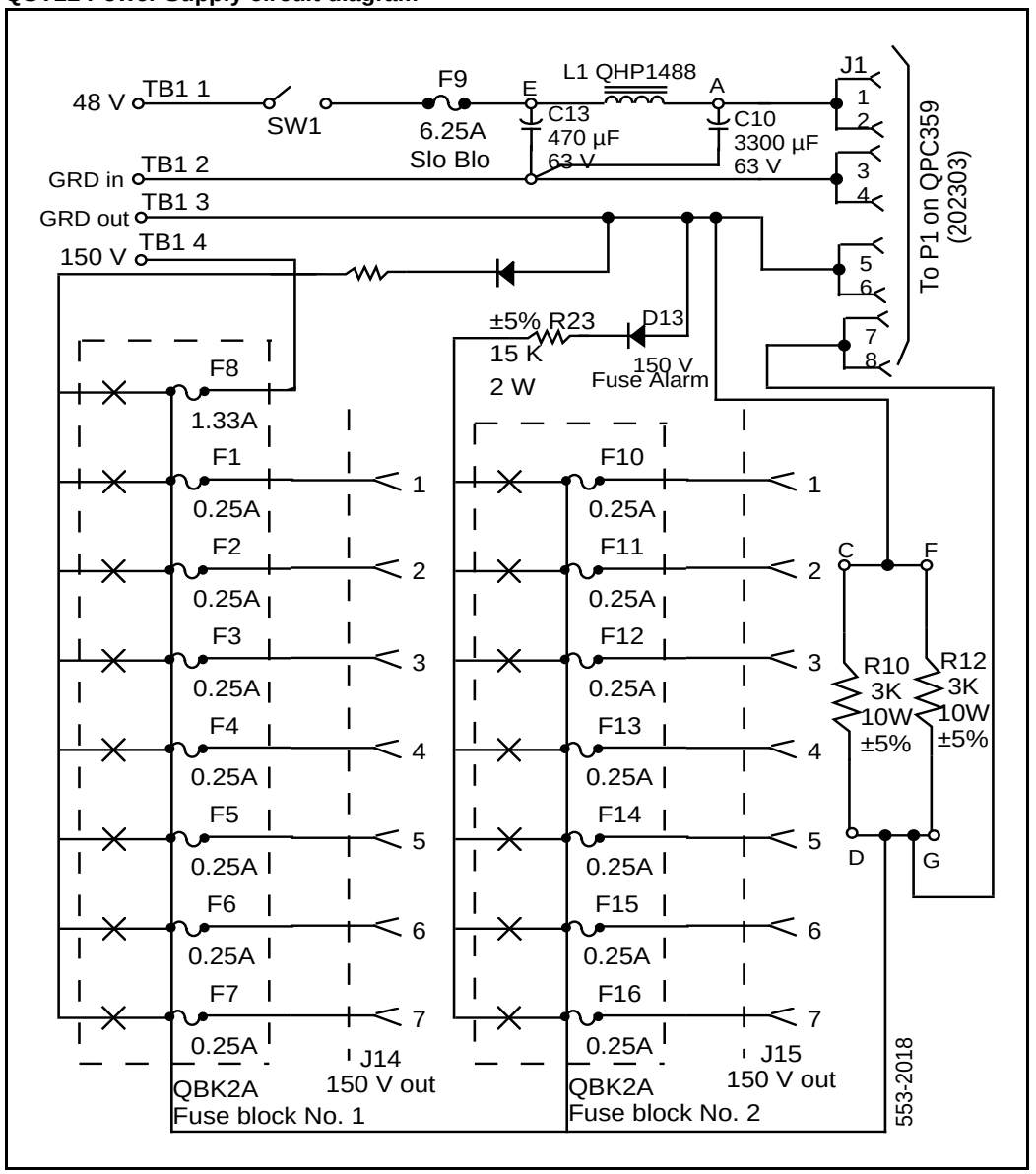
The unit mounts between the uprights where the terminal block (TBC) is on a normal cabinet. To accommodate the power supply, the TBC is moved up if necessary to facilitate the installation of the QSY22 unit (Figure 1 on page 33). The power supply is then installed below the terminal block.

Figure 1
QSY22 Power Supply connections



Fuse No.	Amps	QCODE	Color
F1-F7,F10-F16	0.18	QFF1E	Yellow
F8	1.33	QFF1A	White
Dummy fuse	—	QFF3A	—

Figure 2
QSY22 Power Supply circuit diagram



QSY19 Power Supply

The QSY19 Power Supply, which is no longer available (Figure 3 on page 36), is any early version power supply used to power the Message Waiting lamps. It can be mounted in the QCA8, QCA23, QCA28, and QCA37 cabinets in the same way as the QSY22. The inputs and outputs are fused in the same way as the QSY22; however, there is no alarm LED on the front panel.

The –48 V dc from the system (Figure 4 on page 37) is connected to the TB-1 terminal of the QSY19. The power ground connection to the system is made using pins
8–15 of P14. The –150 V dc output for the QBL16 on the QCA7 cabinet is taken from TB1-3. A load strap is connected from TB1-2 to TB1-3.

The installer must ensure that the load strap (Figure 3 on page 36) is installed before connecting –48 V dc power to the QSY19 power supply; otherwise the power supply could be damaged. If a field installation of the load strap is required, 16 AWG red stranded wire is recommended.

Figure 3
QSY19 Power Supply connections (This unit is no longer available.)

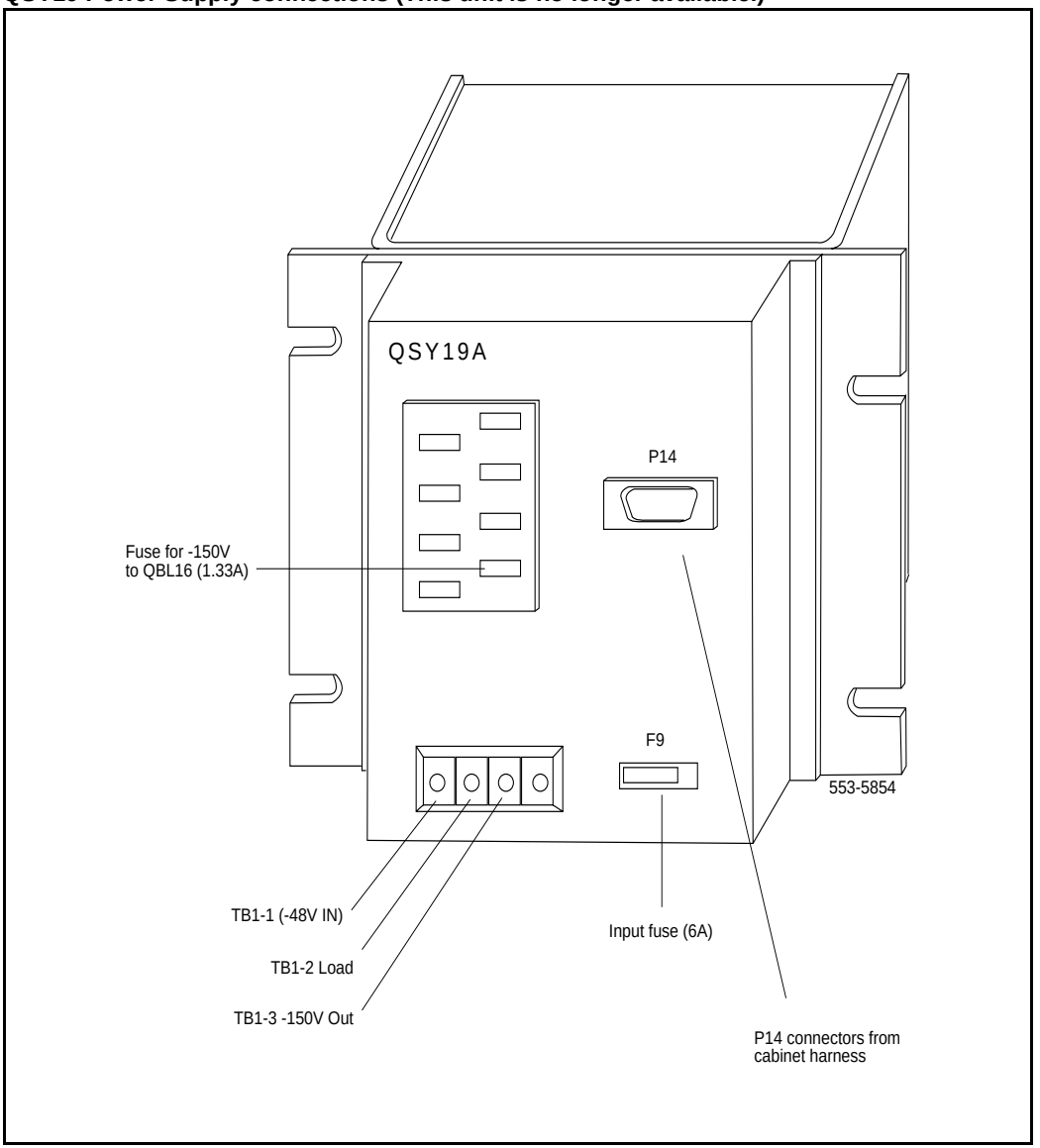
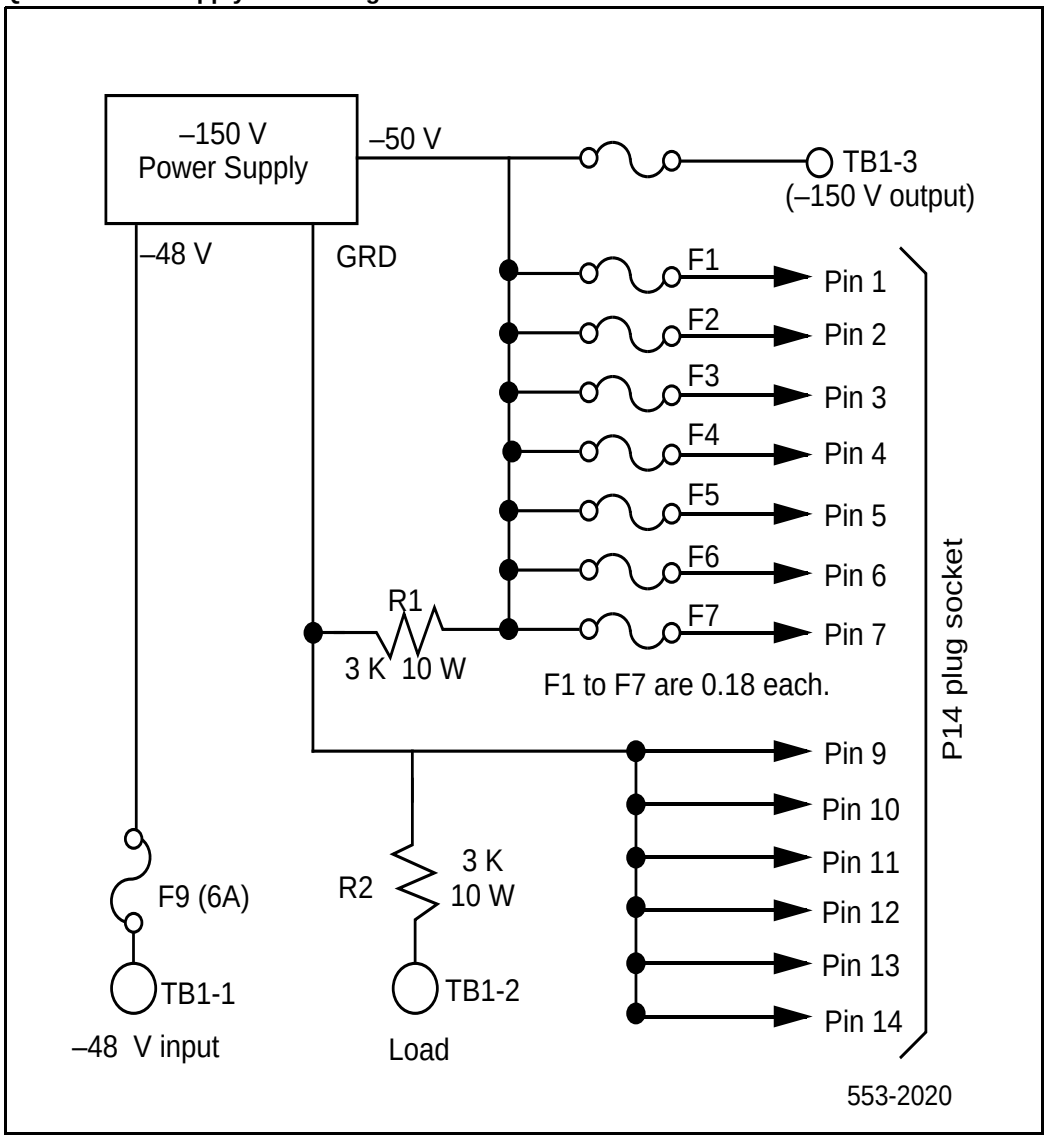


Figure 4
QSY19 Power Supply circuit diagram



QBL16 Power Distribution Unit

Power distribution in the associated PE cabinet is done by the QBL16 Power Distribution Unit (Figure 5 on page 38). The –150 V dc input for the QBL16 comes from the QSY22/QSY19 through a QCAD2 10 AWG power cable that connects to the TB1 terminal of the QBL16 (Figure 6 on page 39). The power is divided into one lead for each shelf, each protected by one fuse (0.18 A) in the QBL16. This power goes out to the shelves through the P14 connector into which plugs the cable from the cabinet wiring harness.

Figure 5
QBL16 Power Distribution Unit connections.

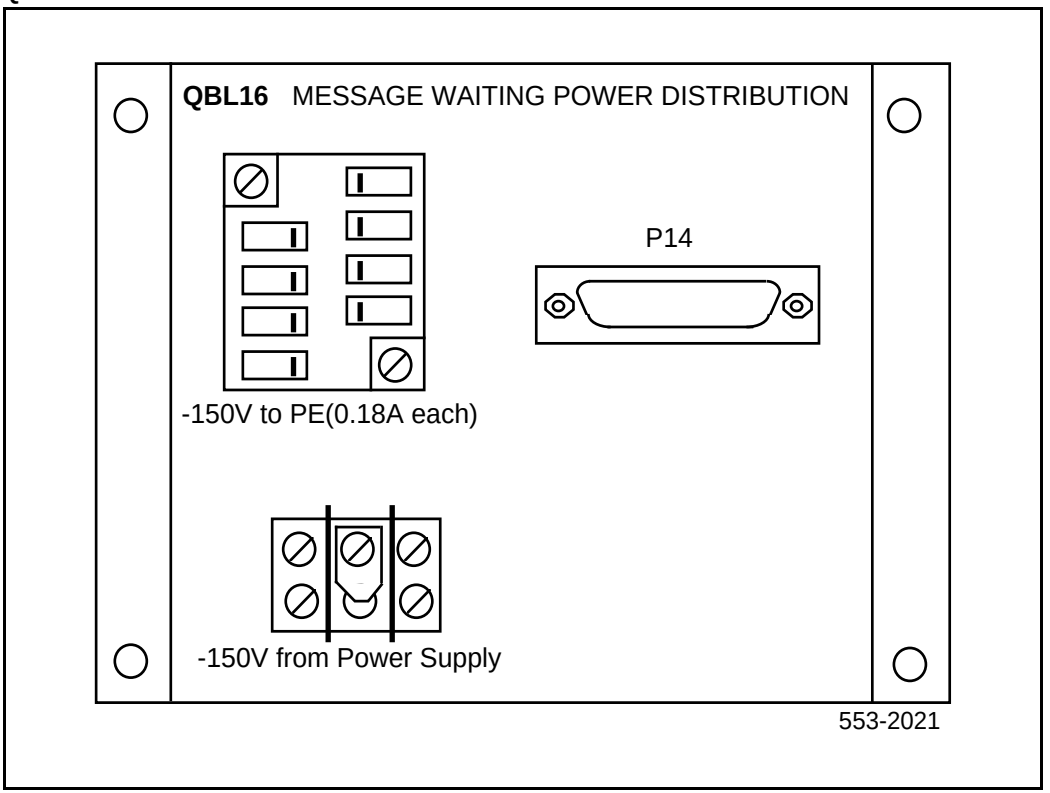
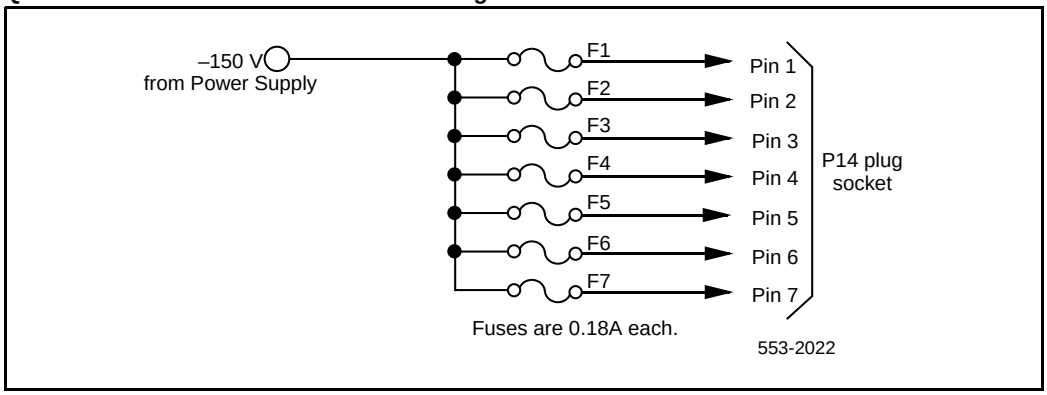


Figure 6
QBL16 Power Distribution Unit circuit diagram.



Mounting

The QBL16 is mounted between the center uprights in the bottom of the QCA7 cabinet in the same relative location as the power unit.

PE cabinets and shelves

The power unit and QBL16 Distribution Unit can be used with PE cabinets of the following vintages:

- QCA8: vintage E or subsequent
- QCA7: vintage D or subsequent
- QCA23, QCA28, QCA37: all vintages

These cabinets are equipped with wiring harnesses that incorporate a cable and P14 connector. The connector plugs into the P14 socket of the power unit or distribution unit, and the wiring harness provides –150 V dc power distribution to the PE shelves in the cabinet.

The cabinets used with the power unit or power distribution unit must contain shelves of the following vintages:

- QSD3, QSD7: vintage B or subsequent
- all other PE shelves: all vintages

Line circuit cards

The circuit cards used for the 500/2500-type telephones depend on the companding law used with a given system. In general, µ-Law companding is used in North America and A-Law companding in parts of Europe and Asia. These cards are based on the standard 500/2500 line cards but include –150 V lamp control circuitry for the neon lamps on the 500/2500 Message Waiting telephones.

The circuit cards are available in single density (four circuits per card) and double density (eight circuits per card) configurations. Single density cards can be used with all systems but are superseded by double density cards that can be used only with systems designed for double density equipment.

The following are the available single density 500/2500 Message Waiting line cards:

- QPC267 (µ-Law)
- QPC286 (A-Law)

Maintenance

Maintenance diagnostic programs are provided by the software to control and test the Message Center services. Message Waiting lamps and set indicators on Meridian products can be tested on a system basis. For a complete description of the overlay programs involved, and their operation, please refer to *Administration* (553-3001-311).

LD 32—Network/Peripheral Equipment Replacement Diagnostic

This diagnostic can be used to test the neon Message Waiting lamp on 500 and 2500 telephones. It can also be used to print out a list of any defective lamps. The telephones with Message Waiting key/lamp pairs are not included in this test.

LD 61—Message Waiting Lamp Reset (MWL)

This program can be set to run automatically as part of the Midnight Routines (MIDS) or can be run manually from a peripheral input device. LD 61 is used to reset the lamp and status for all telephones within the system. When run manually, the command G starts the program.

The program does not reset lamp status unless all Message Center telephones are out of service, as under Night Service conditions.

Power supply installation

Contents

This section contains information on the following topics:

QSY22 41
QBL16 42

QSY22

The Message Waiting power supply is installed according to the steps defined in Procedure 1 on page 42. The QSY22 Message Waiting power supply supersedes the QSY19 and can be mounted in any of the following cabinets:

- QCA8
- QCA23
- QCA28
- QCA37

The unit is mounted between the uprights immediately below the TBC (Figure 1 on page 33). To facilitate the installation of the Message Waiting power supply, you may have to move the TBC up. If you have to move the TBC do it before you start the steps of Procedure 1 on page 42.

> ***Note:*** The QSY22 includes the cables required for the –48 and –150 V power leads. The cabinet wiring harness may or may not contain a P14 plug, depending on whether or not PE is provided in the cabinet.

Procedure 1
Installing the QSY22 Message Waiting Power Supply

1 Set the input switch on the QSY22 power unit to OFF.

2 Remove the two flat-head screws securing the plastic shield over TB1 of the QSY22 unit.

3 Disconnect the lead assembly supplied with the QSY22 unit.

4 Position the QSY22 unit in the cabinet, and secure it with four mounting screws (Figure 1 on page 33).

5 Connect the BLACK lead (with two lugs) between the TB1 terminal 3 of the QSY22 unit and the ground bus in the center of the cabinet.

6 Connect the other BLACK lead (lug end) to the TB1 terminal 2 of the QSY22 unit and the ground terminal (1) of the TBC.

7 If the Message Waiting shelves and harness are provided in this cabinet, connect the P14 connector of the cabinet harness to connector P14 of the QSY22 unit.

8 Connect the RED lead (lug end) to the TB1 terminal 1 of the QSY22 unit and the other end to the –48 V terminal (3) of the TBC.

DANGER OF ELECTRIC SHOCK
This is a LIVE connection. Be careful when making this connection. Also, a short to ground could cause a complete loss of power to this cabinet.

9 Set the INPUT switch of the QSY22 to ON.

10 Test for –150 V at TB1 terminal 4.

11 If a QBL16 Distribution Box is to be provided in a companion QCA7 cabinet, perform the steps of Procedure 2 on page 43, then return to Step 12 of this chart.

12 Secure the plastic shield in place over TB1 with two flat-head screws.

QBL16

The QBL16 Message Waiting Power Distribution Box is installed by following the steps in Procedure 2 on page 43. This unit is mounted in the QCA7 companion cabinet next to the cabinet containing a QSY22 or QSY19, and in the same relative location within the cabinet as the QSY22/QSY19.

Procedure 2
Installing the QBL16 Message Waiting Distribution Box

1 Position the QBL16 unit in the QCA7 cabinet, and secure it with four mounting screws.

2 Remove the –150 V dc output fuse from the QSY22/QSY19 Power Supply (F8, 1.33 A).

3 Run the QCAD2 power cable between the QSY22 (or QSY19) Power Supply and the QBL16 Distribution Box.

4 Connect one end of the QCAD2 cable to the terminal on the QBL16 (Figure 5 on page 38).

5 Connect the other end to the terminal TB1-4 of the QSY22 Power Supply (Figure 1 on page 33). In the case of the QSY19 Power Supply, connect it to terminal TB1-3 (Figure 3 on page 36).

6 Connect the P14 plug from the QCA7 wiring harness to the P14 socket on the QBL16.

7 On the QSY22/QSY19 Power Unit, replace the –150 V dc output fuse.

8 Test for –150 V dc at TB1 of the QBL16 Power Distribution Box.

Feature interactions

ACD Message Center

The operation of ACD Message Center telephones is basically the same as an ACD system with incoming call queues and available agent queues. The ACD Message Center cannot operate in combination with an Attendant Message Center. However, if all telephones are in the Make Busy mode (not logged in), Message Center calls can be routed to the attendants who can then function as the Message Center. Queue overflow features are allowed for a Message Center ACD DN in the same way as any other ACD system with the properly equipped package. Other ACD features such as RAN, music, and so on, operate as for a normal ACD system with the appropriate packages.

A Message Center operator cannot originate calls on the MSG IN-CALLS key; therefore, originating features are not applicable on this key. Separate DN keys must be provided for these functions.

DN Message Center

The Message Center DN must be the prime DN; otherwise, all normal features can be assigned to this DN.

Attendant Message Center

Once a call is extended to an ACD Message Center by an attendant, it is released completely from attendant operation and, Recall, Camp-On, and so on, and cannot be activated. For calls extended to a DN Message Center, normal attendant functions, such as Recall and Camp-On, can be used. Other attendant functions operate normally.

Call Forward (All Calls)

Call Forward should be denied at telephones serving as the Message Center. On a telephone basis, Call Forward takes precedence over the Message Center. If a call is forwarded to another telephone, activation of Message Waiting depends on whether or not the second telephone has Message Waiting Allowed.

If the system is equipped with software Release 19 or later, Call Forward Message Waiting dialtone can be provided to 500/2500 type telephones as an indication that Call Forward All Calls is active and a message is waiting at the message center.

Call Forward (Internal Calls)

The Message Center treats Internal CFW in the same way as Call Forward All Calls (CFAC).

If the system is equipped with software Release 19 or later, Call Forward Message Waiting dial tone can be provided to 500/2500-type telephones as an indication that Call Forward, Internal Calls is active and a message is waiting at the Message Center.

Call Forward Busy (CFB)

CFB should be denied on telephones serving as the Message Center. An option is provided to allow DID calls to a busy telephone to be routed to the Message Center. If this option is selected by the customer, Message Waiting takes precedence over the customer-defined path for CFB.

Call Forward No Answer (CFNA)

CFNA should be denied at telephones serving as the Message Center. On a telephone user basis, Message Waiting takes precedence over the customer-defined path of CFNA.

The capability to light and extinguish Message Waiting lamps can be used with CFNA to simulate a Multiple Message Center. Any telephone equipped with message lamps, but without Message Waiting Allowed class of service, can use CFNA to specified DNs on the telephones equipped with MSG INDIC and MSG CANC key/lamp pairs.

These telephones have the capability to light or extinguish Message Waiting lamps by manually entering the DN of the telephone for which a message was taken. Call processing is the normal call processing for CFNA, not the Message Center call processing. When a call is forwarded, the MSG INDIC lamp does not light, since this is not true Message Center operation.

Call Transfer/Conference from 500/2500 telephones

Message Waiting interrupted dial tone is not provided when the user flashes the switchback to activate Call Transfer or Conference. The normal dial tone for this purpose is provided.

Flexible CFNA to any DN

Flexible CFNA to any DN forwards unanswered calls to a predesignated CFNA DN. All telephones with Message Waiting Allowed have the CFNA DN assigned to the Message Center regardless of whether Flexible CFNA has been selected by the customer or whether CFNA is allowed or denied for the telephone.

Hunting

Hunting should be denied at telephones serving as the Message Center. On a user basis, Hunting takes precedence over Message Waiting. However, Message Waiting can be activated after Hunting, provided the hunted telephone is Message Waiting Allowed and does not answer the call. If desired, the MC DN can be specified as the hunt number.

Listed Directory Number

A Message Center can be assigned to a Listed Directory Number (LDN) and behaves in a similar manner to an Attendant Message Center. The calls come in on an LDN ICI instead of the MSG CENTER ICI, and direct message calls do not activate the MSG CANC key. The operator must access the user telephone directly to cancel that telephone's Message Indication.

Ring Again for 500/2500 telephones

Message Waiting interrupted dial tone is not provided when the user flashes the switchback to activate Ring Again. For this purpose, the normal dial tone is provided.

User Selectable Call Redirection (USCR)

USCR allows the user to perform the following two tasks:

- To assign the four redirection DNs from the telephone. These DNs include the CFNA DN and the external CFNA DN (if it exists).
- To change the way the number of ringing cycles are defined for Flexible Call Forward No Answer (CFNA). One of three options can now be selected from the telephone.

This feature does not support Basic Rate Interface (BRI) telephones.

Message Center packaging

If an ACD Message Center is not required, the customer must order only the Message Center package. However, if an ACD Message Center is required, the appropriate ACD package should be ordered in addition to Message Center. An option for the ACD Message Center is the Integrated Messaging System (IMS).

Note that an ACD package is required if an Attendant Message Center is accessed by an MSG CENTER ICI key. This is required for the Phantom ACD DN associated with the MSG CENTER ICI key. Refer to *Automatic Call Distribution: Feature Description* (553-2671-110).

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Meridian 1 and Succession Communication Server for Enterprise 1000

Message Center

Description and Operation

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